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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/812,989

03/31/2004

Yasuyuki Mizusaki

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
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EXAMINER

TRAN, TRANG U

ART UNIT

PAPER NUMBER

2622

NOTIFICATION DATE

DELIVERY MODE

09/13/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/812,989	MIZUSAKI, YASUYUKI	
	Examiner	Art Unit	
	Trang U. Tran	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9-13, 18-22 and 27 is/are rejected.
- 7) ☒ Claim(s) 5-8, 14-17 and 23-26 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/31/2004</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Drawings

1. Figures 1-2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 4, 12 and 21 are objected to because of the following informalities: the limitation "a second addition circuit" should be deleted or should be changed to --a first addition circuit--because claim 1 does not disclose "a first addition circuit". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-4, 9-13, 18-22 and 27 are rejected under 35 U.S.C. 102(a) as being anticipated by the admitted prior art (Figs. 1-2, pages 1-4 of the Specification).

In considering claim 1, the admitted prior art (Figs. 1-2, pages 1-4 of the Specification) discloses all the claimed subject matter, note 1) the claimed a main circuit configured to form the nonlinear input signal into a first nonlinearly-processed signal using a first function which has an approximate linear characteristic divided into a plurality of intervals is met by the interval decision circuit 102 and the processing circuits 103-110 (Figs. 2), and 2) the claimed an assistant circuit configured to form the first nonlinearly-processed signal into a second nonlinearly-processed signal using a second function which has an approximate linear characteristic in which each of the intervals is divided into two connected line segments is met by the output signal interval circuit 111 (Figs. 1-2, pages 1-4 of the Specification).

In considering claim 2, the admitted prior art (Figs. 1-2, pages 1-4 of the Specification) the claimed wherein the main circuit comprises: a decision circuit configured to determine a particular interval out of the intervals in which the nonlinear input signal fall is met by the interval decision circuit 102 (Figs. 1-2, pages 1-4 of the Specification), 2) the claimed a signal-generation circuit configured to form the nonlinear input signal into a plurality of first processed signals for each of the intervals is met by the nonlinear circuit 101 (Figs. 1-2, pages 1-4 of the Specification), 3) the claimed a plurality of main processing circuits corresponding to respective of the intervals, each of the main processed circuits configured to multiply the first processed signals inputted into the respective intervals by predetermined coefficients to form second processed signals the processing circuits 103-110 (Figs. 2), and 4) the claimed a first addition circuit configured to add the second processed signals resulting from multiplication

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processes in the respective intervals, the first addition circuit forming the first nonlinearly-processed signal is met by the output signal interval circuit 111 (Figs. 1-2, pages 1-4 of the Specification).

In considering claim 3, the claimed further comprising: a storage circuit configured to store the predetermined coefficients is met by the approximate linear register circuit 112 (Figs. 1-2, pages 1-4 of the Specification).

In considering claim 4, the claimed wherein the assistant circuit comprises: a second addition circuit configured to add a processed correction value to the first nonlinearly-processed signal is met by the output signal interval circuit 111 (Figs. 1-2, pages 1-4 of the Specification).

In considering claim 9, the claimed wherein the first function and the second function have γ characteristic for processing a nonlinear signal used for an image signal is met by the approximate linear register circuit 112 (Figs. 1-2, pages 1-4 of the Specification).

Claim 10 is rejected the same reason as discussed in claim 1.

Claim 11 is rejected the same reason as discussed in claim 2.

Claim 12 is rejected the same reason as discussed in claim 4.

Claim 13 is rejected the same reason as discussed in claim 4.

Claim 18 is rejected the same reason as discussed in claim 9.

Claim 19 is rejected the same reason as discussed in claim 1.

Claim 20 is rejected the same reason as discussed in claim 2.

Claim 21 is rejected the same reason as discussed in claim 4.

Claim 22 is rejected the same reason as discussed in claim 4.

Claim 27 is rejected the same reason as discussed in claim 9.

Allowable Subject Matter

5. Claims 5-8, 14-17 and 23-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Each dependent claims 5, 14 and 23 identifies the uniquely distinct features: "wherein the assistant circuit comprises: an assistant storage circuit configured to store a correction amount to be added to the first function, and the assistant circuit is configured to read the correction amount of the selected interval from the assistant storage circuit, and to form the second function having characteristics in which the correction amount is added to at a midpoint of the selected interval of the first function such that a point at which the correction amount has been added is set as a maximum gain and the correction amount decreases toward start and end points of the selected interval". All references of the record, either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lee (US Patent No. 6,900,747 B2) discloses method of compressing lookup table for reducing memory non-linear function generating apparatus having lookup table compressed using the method and non-linear function generating method.

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Pirjaberi (US Patent No. 6,833,876 B1) discloses using a reduced memory lookup table for gamma correction through interpolation.

Lee (US Patent No. 6,573,934 B1) discloses apparatus and method for digital correction of non-linearity using a piecewise linear approximation technique.

Kwak et al. (US Patent No. 6,166,781) disclose non-linear characteristic correction apparatus and method therefor.

Main (US Patent No. 5,408,267) discloses method and apparatus for gamma correction by mapping, transforming and demapping.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trang U. Tran whose telephone number is (571) 272-7358. The examiner can normally be reached on 8:00 AM - 5:30 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

September 1, 2007



Trang D. Tran
Primary Examiner
Art Unit 2622